

**Table S3.** Contents of major elements (wt.%) in biotites of the magmatic rocks of the Tommot and Somnitelnyi massifs

rocks	essexite			hornblendite			toensbergite			pegmatite	granite
Sample	V9/3	V9/3	V9/3	V5/1	V5/1	V5/1	V15/6	V15/6	V12/9	V3/6	V29/6
SiO <sub>2</sub>	35.34	35.25	34.92	35.79	36.47	36.73	35.13	35.21	34.72	36.44	38.76
TiO <sub>2</sub>	3.27	3.36	3.27	2.48	2.55	2.63	3.89	3.97	3.24	3.46	1.53
Al <sub>2</sub> O <sub>3</sub>	15.77	14.11	16.17	16.34	16.27	16.05	14.75	15.21	14.25	14.20	11.34
Cr <sub>2</sub> O <sub>3</sub>	-	-	-	-	-	-	-	-	0.03	-	-
Fe <sub>2</sub> O <sub>3</sub>	-	3.04	1.60	1.77	1.89	1.55	2.32	2.66	3.72	3.08	3.20
FeO	19.08	20.49	14.88	14.39	14.36	14.61	17.25	17.70	26.66	26.55	11.85
MnO	0.17	0.17	0.13	-	0.15	0.74	0.18	0.16	0.23	0.60	2.57
MgO	10.40	8.91	12.22	13.37	12.99	12.55	9.75	9.98	3.43	3.70	8.18
CaO	0.03	0.01	0.03	-	-	0.01	0.02	-	0.06	0.03	1.69
Na <sub>2</sub> O	0.45	0.31	0.32	0.32	0.33	0.36	0.46	0.56	0.11	0.09	0.40
K <sub>2</sub> O	9.15	9.22	9.18	9.48	8.97	9.40	8.94	8.29	8.94	9.42	7.90
H <sub>2</sub> O	3.95	3.18	4.36	3.67	4.02	4.78	4.01	3.64	3.01	2.32	8.93
F	0.20	0.01	0.34	0.50	0.25	0.20	0.54	0.52	0.39	0.28	2.69
Cl	0.10	0.14	0.12	0.15	0.13	0.12	0.11	0.09	0.16	0.09	0.29
Li <sub>2</sub> O	0.59	0.56	0.47	0.72	0.92	0.59	0.53	0.55	0.41	0.91	1.13
O=F,Cl	0.11	0.03	0.17	0.24	0.14	0.11	0.25	0.24	0.20	0.14	0.72
Σ	98.43	98.79	98.17	99.22	99.44	100.43	98.13	98.78	99.57	101.31	101.18
Si	5.47	5.34	5.33	5.35	5.40	5.43	5.41	5.34	5.40	5.50	6.13
Al <sup>4+</sup>	2.53	2.66	2.67	2.65	2.60	2.57	2.59	2.66	2.60	2.50	1.87
Al <sup>6+</sup>	0.34	-	0.23	0.24	0.23	0.23	0.08	0.05	0.01	0.02	0.25
Ti	0.38	0.38	0.38	0.28	0.28	0.29	0.45	0.45	0.38	0.39	0.18
Cr	-	-	-	-	-	-	-	-	0.01	-	-
Fe <sup>3+</sup>	-	0.35	0.18	0.20	0.21	0.17	0.27	0.30	0.44	0.35	0.38
Fe <sup>2+</sup>	2.47	2.26	1.90	1.80	1.78	1.81	2.22	2.24	3.47	3.35	1.57
Mn	0.02	0.02	0.02	-	0.02	0.09	0.02	0.02	0.03	0.08	0.34
Mg	2.40	2.01	2.78	2.98	2.86	2.37	2.24	2.26	0.80	0.83	1.93
Li	0.37	0.34	0.29	0.43	0.54	0.59	0.33	0.34	0.26	0.55	1.00
Ca	0.01	-	-	-	-	-	-	-	0.01	0.01	0.29
Na	0.14	0.09	0.10	0.04	0.10	0.10	0.14	0.16	0.03	0.03	0.12
K	1.81	1.78	1.79	1.81	1.69	1.77	1.76	1.60	1.77	1.81	1.59
OH	3.87	3.96	3.81	3.72	3.85	3.88	3.71	3.73	3.77	3.84	3.14
F	0.10	-	0.16	0.24	0.12	0.09	0.26	0.25	0.19	0.13	0.78
Cl	0.03	0.04	0.03	0.04	0.03	0.03	0.03	0.02	0.04	0.02	0.08
Σ	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.99	4.00
Fe <sup>2</sup> /(Fe+Mg)%	50.7	59.4	42.8	40.1	41.0	41.8	52.7	53.1	83.1	81.6	49.7
Al/(Al + Si)	20.4	19.7	22.2	21.8	21.7	21.6	20.9	21.1	20.6	20.1	17.5

T°C	700	692	717	680	677	682	722	721	670	675	641
P, kbr	2.2	1.5	2.3	2.2	2.0	2.0	1.4	1.7	1.4	1.1	0.9
Log f O <sub>2</sub>	-14	-15.4	-13	-11.7	-12	-13	-14.8	-15	-17.5	-17.2	-14
mineral	Fe-biotite			Mg-biotite		Fe-biotite			Lepidomelane		Fe-biotite

*Notes:* the analyses were performed at IGABM SB RAS using the Camebax-micro microanalyzer by L.A. Pavlova and S.P. Roev.

Determination of temperatures: T [36]; pressure P - [37]; log f O<sub>2</sub> - [38], Li<sub>2</sub>O and H<sub>2</sub>O calculations by [39].